

*Amendment Under 37 C.F.R. §1.116 – Expedited Examining Procedure
Serial No. 09/776,470
Filed: February 2, 2001*

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Remarks

The Office Action mailed November 26, 2004 has been received and reviewed. Claims 1, 5, 11, and 15 have been amended. Therefore, the pending claims are claims 1-2, 4-12 and 14-20. Reconsideration and withdrawal of the rejections are respectfully requested in view of the amendments and remarks provided herein.

Amendment to the Claims

Claims 1 and 11 were amended to include the language that the thermal image data of at least a periorbital region of an eye of the person is "representative of blood flow to at least eye musculature in the periorbital region." Although Applicants believe that the claims were patentable over Tessal as set forth in the previously filed response, this amendment was made to further clearly differentiate the present invention from Tessal as described further herein. Support for this amendment is found on at least page 7 of the specification of the pending application.

Claims 5 and 15 were amended to correct for a lack of antecedent basis alleged by the Examiner.

The 35 U.S.C. §112, Second Paragraph, Rejection

The Examiner rejected claim 5 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Specifically, the Examiner alleged that "the periorbital region" in claim 5 was different than that of claim 1. Although Applicants traverse such allegations, an amendment is provided to clearly show that both are the same. Further, substantially the same type of amendment was made to claim 15.

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The 35 U.S.C. §103 Rejection**Claims 1-2 and 14-20**

The Examiner rejected claims 1-2, and 4-10 under 35 U.S.C. §103 as being unpatentable over Tessal (WO 98/08431). The Examiner indicates that Tessal discloses the invention as described in claim 1, except that Tessal "fails to explicitly disclose the periorbital region of an eye of the person, as claimed." However, the Examiner indicates that the "periorbital region is read as the region of the face surrounding the eye that region is very well include some portion of forehead and some portion of cheeks of the person. And, as suggested in the page 4, lines 29-35, that simple experiments may reveal other location of the skins that may also be use for finding the physiological state of the person . . ." The Examiner alleges that it would be obvious for one skilled in the art "to simply work on the suggestion of the Tessal in order to come up with a thermal detection of the physiological state of the person." Applicants respectfully traverse this rejection.

However, as indicated above, Applicants have amended the claims to move the application forward to issuance. In doing so, the independent claims have been amended to include the limitation that the thermal image data includes thermal image data of at least a periorbital region of an eye of the person "representative of blood flow to at least eye musculature in the periorbital region."

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references must teach or suggest all the claim limitations. See M.P.E.P. § 2143.

Claim 1 includes the limitation that the thermal image data includes thermal image data of at least a periorbital region of an eye of the person that is representative of blood flow to at least eye musculature in the periorbital region. The thermal image data (i.e., thermal image data

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of at least a periorbital region representative of blood flow to at least eye musculature in the periorbital region) is then used to determine a physiological state of the person. For at least the reasons set forth below, claim 1 is not obvious in view of Tessal.

Tessal does not teach or suggest all the claim limitations. There is no teaching or suggestion of the provision of thermal image data of at least a periorbital region that is representative of blood flow to at least eye musculature in the periorbital region. Tessal primarily describes the use of asymmetrical temperature changes of the left and right forehead as described throughout Tessal, for example, on page 4, lines 26-29. However, the Examiner attempts to extend such description in Tessal to other symmetrically located skin portions, such as ears and cheeks, by indicating that page 4, lines 29-35 suggest "that simple experiments may reveal other location of the skins that may also be use for finding the physiological state of the person . . ."

However, the Examiner acknowledges that Tessal does not explicitly describe thermal image data of the periorbital region, and clearly Tessal does not teach or suggest use of thermal image data of the periorbital region representative of blood flow to at least eye musculature in the periorbital region. Clearly eye musculature is not considered in Tessal. Tessal deals primarily with temperature differential across the forehead.

Further, there is no reasonable expectation of success in Tessal using such data from the periorbital region. Tessal describes the use of asymmetrical temperature changes of the left and right forehead, and language in Tessal (i.e., at page 4, lines 26-36) attempts to extend such description to "other symmetrically located skin portions, such as ears and cheeks, which also exhibit this phenomenon." However, there is nothing that would indicate that the periorbital region of the eye would exhibit the phenomenon of asymmetrical temperature changes like that of the left and right forehead. This is particular evident in Tessal which names skin portions that are similar to the forehead, such as ears and cheeks, that may exhibit this phenomenon. However, ears and cheeks, which may be considered similar to the forehead, are quite unlike the eye musculature region. As such, there is no reasonable expectation of success in Tessal using

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such thermal data from the periorbital region that is representative of blood flow to at least eye musculature.

For at least the above reasons, claim 1 is not obvious in view of Tessal.

Further, the claims 2, 4-10 depend on independent claim 1, either directly or indirectly. Therefore, they include the limitations of independent claim 1. As such, these claims are also not obvious in view of Tessal for the same reasons as described above and by reasons of their own limitations.

For example, claim 4 includes the limitation that a change is detected, over a plurality of frames, in the thermal image data (i.e., thermal image data of the periorbital region that is representative of blood flow to at least eye musculature) when the person is experiencing anxiety. Further, for example, claim 8 has been amended such that the thermal image data includes both mid-infrared thermal image data of the at least one region of the face and far-infrared thermal image data of the least one region of the face. Such limitations are not suggested or taught in Tessal.

Claims 11-12 and 14-20

The Examiner further rejected claims 11-12 and 14-20 for the same reasons as set forth in the rejection of claims 1-2 and 4-10, because such claims are system claims for the method claims. Applicants respectfully traverse such rejections and submit that the above amendments with respect to such claims 11-12 and 14-20, and also remarks provided with respect to claims 1-2 and 4-10, are sufficient to overcome this rejection.

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Summary

It is respectfully submitted that the pending claims are in condition for allowance and notification to that effect is respectfully requested. The Examiner is invited to contact Applicants' Representatives, at the below-listed telephone number, if it is believed that prosecution of this application may be assisted thereby.

Respectfully submitted for

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By

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CERTIFICATE UNDER 37 CFR §1.8:

The undersigned hereby certifies that the Transmittal Letter and the paper(s), as described hereinabove, are being transmitted by facsimile in accordance with 37 CFR §1.6(d) to the Patent and Trademark Office, addressed to Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 26th day of January, 2005, at 3:50 pm (Central Time).

By: 

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